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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,493	11/14/2003	Gary Edward Trewiler	134314	9211

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EXAMINER	
AFZALI, SARANG	

ART UNIT	PAPER NUMBER
3726	

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11/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,493	TREWILER ET AL.	
	Examiner	Art Unit	
	Sarang Afzali	3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE filed 10/17/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6 and 8-22* is/are pending in the application.

4a) Of the above claim(s) *8-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,21 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/17/2007 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21, lines 3-4, the limitation of "using at least one of a nickel alloy and a titanium alloy" is unclear as to what exactly the nickel alloy or titanium alloy is used for? Is it the replacement portion or the remaining blade portion that is made of nickel alloy or titanium alloy?

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-6 and 21 as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by Meier et al. (US 6,438,838) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Meier et al. in view of Wachtell et al. (US 3,650,635).

As applied to claims 1, 2 and 6, Meier et al. teach a method of replacing a portion of a gas turbine engine rotor blade, the hollow (claim 18) rotor blade having an original blade contour defined by a blade first sidewall and a blade second sidewall, said method comprising:

cutting through the rotor blade such that a cut line extends from a leading edge of the blade to a trailing edge of the blade and between the first sidewall and the second sidewall, and such that the cut line extends at least partially through a hollow portion of the blade defined between the first and second sidewalls;

removing the portion of the rotor blade that is radially outward of the cut line; and

coupling with resistance welding (col. 1, lines 31-35) a replacement blade portion to remaining blade portion with a single-pass weld forming a single weld joint extending along the cut line such that a newly formed rotor blade is formed with an aerodynamic contour that is one of an improvement in an aerodynamic performance over the original blade contour and mirroring the original blade contour (Abstract, Figs. 1-4).

Meir et al. teach that it is well known in the art to use resistance welding to join vanes to the rotor carrier of a turbine engine (col. 1, lines 31-35).

In the alternative, if the applicant believes that Meier et al. disclosure of "welding the replacement vane section in a protective gas atmosphere by exciting the inductor with high frequency current and moving opposing heated part surfaces together" (Abstract, lines 11-15) does not meet the limitation of "single weld forming a single weld joint" recited in claim 1, Wachtell et al. teach a method of repairing a damaged hollow turbine blade by removing a damaged area and inserting a replacement section and welding the parts together with electron beam welding (well known in the art to provide a single pass weld) to provide a single weld joint along the cut line such that the newly formed rotor blade has even better and more improved characteristics than the original blade (Figs. 1, 3 & 4, col. 1, lines 53-58, col. 3, lines 50-53).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Meier et al. with a single pass weld as taught by Wachtell et al. in order to provide a weld joint resulting in a better and more improved characteristics of the repaired blade than the original blade.

As applied to claim 3, Meier et al. teach that a further machining step is performed subsequent to the welding step to a desired finished dimension (col. 4, lines 13-17). Note that Meier et al. disclosure of "it may require removal in a subsequent machining step" teaches that the thickening dimension at that point is not desired and therefore the machining step will result in a desired finished dimension.

As applied to claim 4, Meier et al. teach the automatic welding of the replacement portion to the remaining blade portion (Fig. 4, col. 3, lines 53-60).

As applied to claim 5, Meier et al./Wachtell et al. teach the invention cited wherein Wachtell et al. teach that material of replacement and remaining blade portions are the same (col. 1, line 56) and that the compositions of superalloys used for turbine component/blade comprise of nickel-base alloy including titanium (col. 3, lines 4-9) and cobalt-base alloy including iron (Fe, col. 3, lines 10-14).

As applied to claim 21, Meier et al. teach a method of coupling a replacement blade portion made of titanium (claim 16) and nickel alloy (claim 17).

6. Claim 22 is rejected under 35 U.S.C. 103(a) as obvious over Meier et al. in view of Wachtell et al. as applied to claim 1, and further in view of Dulaney et al. (US 6,238,187).

Meier et al./Wachtell et al. teach the invention cited with the exception of rough and final blending the welded replacement blade portion.

However, Dulaney et al. teach a method of repairing an airfoil having a damaged area wherein a section of the airfoil containing the damaged area is removed and a

replacement piece is welded followed by rough and final blending of the replaced portion is used to achieve a finished dimension as necessary to put the joined airfoil within predetermined tolerances (col. 14, lines 20-28).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Meier et al./Wachtell et al. with a rough and final blending as taught by Dulaney et al. in order to provide finished blade that would meet the original dimensional requirements.

Response to Arguments

7. Applicant's arguments filed 09/14/2007 have been fully considered but they are not fully persuasive.

Applicant's amendment to the claims is acknowledged and as such, by cancelling claim 2 and amending claim 3, the objection and rejection under 112, first and second paragraph of claims 2 and 3 as outlined in the final office action mailed on 7/26/2007, are withdrawn.

Applicant argues (Remarks, page 4, paragraph 2) that "Neither Meier nor Wachtell, considered alone or in combination, describe nor suggest a method of replacing a portion of a gas turbine engine rotor blade as is recited in Claim 1. More specifically, neither Meier nor Wachtell, considered alone or in combination, describe nor suggest coupling, with resistance welding, a replacement blade portion to a remaining blade portion with a single-pass weld to form a single weld joint extending along a cut line extending from a leading edge to a trailing edge of the blade."

The Examiner respectfully disagrees with the above arguments. Meier et al. teach the claimed steps of repairing a damaged blade including the use of resistance welding to bond a replacment piece to a rotor blade. Wachtell et al. teaches a single pass weld used in the repair of a damaged portion of a blade.

Therefore, the combination of Meir et al. combined with Wachtell et al. teach the claimed invention.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. German Patent, DE 2319994 (Patent-Family member of French Patent, FR 2226241 cited by Meier et al. '838) explicitly teaches that a resistance welding is used to for bonding turbine vanes to a rotor carrier (Title, Figure).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SA

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11/26/2007

DAVID P. BRYANT
SUPERVISORY PATENT EXAMINER

11/29/07